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Toxic Air Pollutant Emission Factors  
Information Storage and Retrieval System  
User's Manual

Radian Corp., Research Triangle Park, NC

Prepared for

Environmental Protection Agency  
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TOXIC AIR POLLUTANT  
EMISSION FACTORS—  
INFORMATION  
STORAGE AND  
RETRIEVAL SYSTEM  
USER'S MANUAL

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| 16. ABSTRACT<br><p>This report presents instructions on the Air Toxics Emission Factor data management system. The system was designed to allow easy access and updates to the emission factor data presented in the accompanying EPA report, <u>Toxic Air Pollutant Emission Factors - A Compilation For Selected Air Toxic Compounds And Source</u>, EPA-450/2-88-006a. This software system is an IBM PC based application that contains a listing of emission factors categorized by pollutant name, Chemical Abstracts Services (CAS) number, industrial process description, Standard Industrial Classification (SIC) code, emission source description, and source classification code (SCC). The program has modules that allow users to search, add, edit, and print data.</p> <p>The purpose of this report is to document the usage of the system. EPA is making available the system and data to agency users on two regular (360KB) diskettes or one high density (1.2 MB) diskette.</p> |                                                  |                                                |
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# **Toxic Air Pollutant Emission Factors— Information Storage And Retrieval System User's Manual**

By

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U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office Of Air And Radiation  
Office Of Air Quality Planning And Standards  
Research Triangle Park, North Carolina 27711

October 1988

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EPA-450/2-88-006b

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## 1.0 INTRODUCTION

The Air Toxics Emission Factor Compilation is available in the accompanying hardcopy report, "Toxic Air Pollutant Emission Factors - A Compilation for Selected Air Toxic Compounds and Sources" (EPA-450/2-88-006a). The report includes a description of the purpose of the project and how the data were compiled, as well as the actual emission factor data. To facilitate printing of the data in the compilation, a data management program was written. This guide describes how to use the data management program to find emission factors and print reports.

The Air Toxics Emission Factor (ATEF) data management system is intended to be a tool for rapidly locating a particular emission factor or group of emission factors and printing the data. The emission factors have been organized by, and may be retrieved by pollutant name, Chemical Abstracts Services (CAS) number, industrial process description, Standard Industrial Classification (SIC) code, emission source description, or Source Classification Code (SCC). The emission factors may also be retrieved by any combination of pollutant name/CAS number, industrial source/SIC code, and emission source/SCC. These options are defined and examples provided later in this guide (Sections 6-9).

The ATEF data management system consists of four modules - emission factor searching, report printing, emission factor editing, and emission factor additions. Throughout this user's manual, the four modules are referred to as (1) Search Database, (2) Print Reports, (3) Edit Information, and (4) Add Information.

This user's manual explains the general operation of the ATEF data management system. It provides the necessary information needed to move between the various modules of the system and obtain emission factors in the most timely and efficient manner. As with any computer program, the user may need some practice to become familiar with all aspects of the ATEF data management system. After a few sessions with the system, the user will become knowledgeable of the database contents and procedures for retrieving information.

## 2.0 GETTING STARTED

This section lists the hardware and software necessary to begin using the ATEF data management system.

### 2.1 SOFTWARE NEEDED

The ATEF data management system is distributed on two regular density (360 KB) 5 1/4" diskettes, or one high density (1.2 MB) diskette. The disk(s) contain the following files:

AIRTOX.DBF .....The actual database (in dBase III Plus® format)\*  
ATEF.EXE ..... The ATEF data management system  
ATEF-IN.BAT ..... The installation batch file  
ATEF-BU.BAT ..... The database backup batch file  
ATEF-RS.BAT ..... The database restoration batch file  
POLL.FRM ..... A form used for report printing  
SIC.FRM ..... A form used for report printing  
SQ.EXE ..... A program to compact the database  
USQ.EXE ..... A program to un-compact the database  
README.TXT ..... This user's guide as a DOS file

### 2.2 EQUIPMENT NEEDED

Use of this database requires:

- An IBM (c) Personal Computer or "compatible" machine that runs MS-DOS (c) or PC-DOS (c) version 2.1 or more recent;
- At least 320 kilobytes (KB) of free Random Access Memory (RAM);
- A fixed disk with at least 5 KB of storage; and
- A 5 1/4" external disk drive.

---

\*dBase III Plus® software is not needed because the program files have been compiled under Clipper® Version Summer 1987.

### 3.0 INSTALLING THE ATEF DATA MANAGEMENT SYSTEM

The ATEF data management system, its accompanying database, this user's guide, the three batch files, and the two compacting programs will be installed in a subdirectory of your fixed disk. One of the batch files, (ATEF-IN.BAT), will perform the database installation. Another batch file, (ATEF-BU.BAT), will control the compaction and storage of the database for backup purposes. The third batch file, (ATEF-RS), will restore the database from a backup in the event of a system failure, such as possible power interruptions, etc.

The disk drive of a computer is arranged in a certain hierarchy. This may be represented as an inverted tree, and, in fact, it is often called a tree structure. The purpose of this structure is to keep the disk organized. Each of the modules in the structure is called a directory and every directory has a unique name. The topmost, or controlling directory, is called the root directory and is identified by the backslash (\) symbol. Every directory that "sprouts" from the root directory is called a subdirectory. The ATEF data management system is placed in a subdirectory of the root directory. This subdirectory is named \ATEF.

To install the ATEF data management system on your computer, follow the steps listed below. Instructions in this guide are presented by showing the user what must be typed into the computer to produce the desired results. The word "TYPE" will be followed by the exact words and symbols to type in. Be sure to type exactly what is shown in each step in the examples. The user does not need to type [Return]; instead, just press the return or enter key.

#### 3.1 STEPS TO INSTALL THE ATEF DATA MANAGEMENT SYSTEM

If the database is to be installed on a fixed disk other than C:, substitute its drive letter (i.e., D, E, F, etc.) in the following instructions.

1. Declare the current directory to be the root directory of the fixed disk by typing the commands below:

```
TYPE          C:  <Return>
TYPE          CD \ <Return>
```

2. Insert disk 1 of your original ATEF data management system disk(s) into drive A: (external disk drive).
3. Copy the database onto the fixed drive by typing:

```
TYPE          RESTORE A: C: /S <Return>
```

and following the instructions displayed on the computer screen. The disk files have now been copied to the \ATEF subdirectory of the fixed disk. To finish the installation procedure:

4. Declare the current directory to be the the ATEF subdirectory of the fixed disk root directory by typing:

```
TYPE          CD \ATEF <Return>
```

5. Install the database by typing:

```
TYPE          ATEF-IN <Return>
```

### 3.2 BACKING UP AND RESTORING THE DATABASE

If the user has entered the commands listed above, the ATEF data management system and associated database (along with the three batch files), have now been installed on the fixed disk. The user should store the original disks where they will be kept dry. The user will not need these original disks again, unless the database has to be reinstalled due

to a computer failure. If the computer does "lose" the ATEF package, the installation procedures, as described in Section 3.1, may be repeated to restore the ATEF data management system.

In the event that the database is lost from the disk drive, the user will need to restore the database. Therefore, the database should be periodically copied to an external diskette for secure storage. This procedure is called a backup and is shown in Appendix A. The backups that are made periodically are not designed to be used on a regular basis. These diskettes will only be used if the ATEF data management system has been removed. If this happens, the database may be copied back onto the computer's fixed disk from the external diskette. This procedure is called a restoration and instructions are presented in Appendix B.

#### 4.0 EXECUTING THE ATEF DATA MANAGEMENT SYSTEM

After the ATEF data management system has been installed onto the fixed disk, the user can begin to work with the database as described below. Installing the database is different from executing the program. Installing the database is done one time to put the information on the computer. Once installed, the program can be used by following the instructions listed below.

To load the ATEF data management system into computer memory and begin using the database, follow these instructions:

1. Declare the current directory to be the ATEF subdirectory of the fixed disk by typing:

```
TYPE          C:      <Return>
TYPE          CD \ATEF <Return>
```

2. Begin program execution by typing:

```
TYPE          ATEF    <Return>
```

##### Important Note:

The first time that the ATEF data management system is run after installation, a considerable amount of time will be spent by the computer building the necessary index files. Depending on the particular computer, the process of indexing the database may take anywhere from 5 to 30 minutes. Subsequent uses will not require these indexing steps.

## 5.0 GENERAL INFORMATION

This section of the user's guide provides general information about the ATEF data management system. It introduces the user to the Main Menu, helps the user develop search strategies, and explains the use of a quick versus an extensive search. Step-by-step instructions on how to use the database and examples the user may work through are given in Sections 6, 7, 8, and 9.

### 5.1 INTRODUCTORY MATERIAL

The first screen that appears on the computer monitor is the title page of the ATEF data management system (Figure 1). It identifies the sponsoring agency, (Office of Air Quality Planning and Standards, United States Environmental Protection Agency), and the contractor, (Radian Corporation). The user may press any key to proceed.

The next screen displayed is the beginning of the ATEF data management system and called the Main Menu. From anywhere in the system, pressing the [Esc] key will always return the user to the Main Menu. The [Esc] key also allows the user to halt an operation, return to the Main Menu, and, if so desired, exit the program altogether.

When any menu appears on the computer screen there are two possible means of making a selection to begin an operation. The first is to use the arrow keys to move the highlight bar over the desired option and press the [Return] key. The second is to press the key corresponding to the first letter of the menu option. A brief explanation is displayed at the bottom of the screen when the highlight bar is over each option.

In general, the ATEF data management system may be used as follows: (1) search the database for the emission factors needed by using the Search Database option; (2) if there are a reasonably limited number of matching records as shown on the screen, they can be printed by pressing the [PrtSc] key while in the Search Database option; and (3) if there are numerous records, the Search option should be exited by pressing the [Esc] key,

AIR TOXICS EMISSION FACTOR DATABASE

Written under contract from

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Office of Air Quality Planning and Standards  
Research Triangle Park, North Carolina 27711

by

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Research Triangle Park, North Carolina 27709

Press any key to Begin

Figure 1. Title Page

returning to the Main Menu, and selecting the Print Reports option. The difference here is in the amount of time it takes to print out reports. If there are only a few records (emission factors) to be printed, it will likely be easier to print the required data while in the Search Database option. Specific examples of these options are presented in Sections 6 and 7.

Both the Edit Information and Add Information options should only be used when the database is to be permanently changed. The Edit Information option allows the user to change an existing record or entry in the database. The Add Information option lets the user add new records or entries into the database. The ability of these two options to alter the database requires that they be used with caution. Examples of using these options are given in Sections 8 and 9.

## 5.2 MAIN MENU

The first menu screen displayed is the heart of the ATEF data management system and called the Main Menu (Figure 2). Every option that a user may select to perform, (such as searching, printing, editing, or adding), begins and ends here. The user will notice that the first option, Search Database, is highlighted. By pressing the down arrow key on the keyboard, the highlight bar on the screen will move to the second option, Print Reports. By pressing the arrow key again, the highlight bar will move to the third option and so on. The user may press the up arrow key to move back to the first option. An option may be selected for use by pressing the <Return> key when the highlight bar is over the desired option, or by pressing the key corresponding to the first letter of the of the Main Menu option (i.e., press "P" and the Print Reports option will be used).

There are five options that may be selected from the Main Menu:

1. Search the database for records that match a specified condition;
2. Print a report containing records that match a specified condition;
3. Edit, or change, records that match a specified condition;

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AIR TOXICS EMISSION FACTOR DATABASE

Friday

| Main Menu                             |
|---------------------------------------|
| Search Database                       |
| Print Reports                         |
| Edit Information                      |
| Add Information                       |
| Press <ESC> to terminate this session |

Locate specified records in the database

Figure 2. Main Menu

4. Add, or append, records to the database; or
5. Exit the program and return to DOS.

Each of these options is discussed in this user's guide.

The only way to exit the program properly is to press the [Esc] key from the Main Menu. The user may exit the program improperly by disconnecting the electrical power, but this is not recommended. If a user turns off the computer or experiences a power failure while the ATEF data management system is in operation, a database restoration may be necessary (see Appendix B).

### 5.3 DEFINING THE SEARCH

When accessing information in the database for display on the screen or printing on a printer, the first step is to define the scope of the information search.

If there are no limitations placed on the data search process, all of the information in the database, from the beginning to the end, will be recovered. Because the database contains over 3,000 records, data search capabilities are needed. To more quickly find only the information the user needs, the database may be searched in the following ways:

1. By specific Pollutant Name or CAS number;
2. By specific Industrial Process or SIC code;
3. By specific Emission Source or SCC; or
4. By any combination of 1, 2, and 3.

For example, suppose the user needed to find emission factors for ammonia from petroleum refineries. A search could be conducted by specifying the Pollutant Name = "Ammonia" and the Industrial Process = "Petroleum refineries." Using a combination of search terms helps the user find the factors that are needed for petroleum refineries and avoid ones that are not needed (i.e., ammonium nitrate production). Specific instructions on how to conduct searches and an example are given in Section 6.

The ATEF data management system will also allow parts of names or numbers to be used in a search strategy. The search string can be truncated, or shortened. For example, if the user were interested in emission factors for external combustion sources, all possible complete SCC's would not need to be entered. The user could just enter the first digit of the SCC and the system would find all the factors with the same first digit. Similarly, a specification of Pollutant Name = "P" would find the pollutant POM; but it would also find Phenol, Phosgene, Phosphorous, Propadiene, Propane, Propanol, Propylene, etc.\*\* The user may want to keep in mind that when beginning a search, the search strategy should not be too narrow because some emission factors that are actually in the database may not be found by the system. For example, a specification of Emission Source = "utility boilers" would not find the emission factor for "utility boiler" because of the "s" in "boilers."

#### 5.4 QUICK SEARCH AND EXTENSIVE SEARCH

The ATEF data management system is designed around two basic types of searches:

1. Quick Search; and
2. Extensive Search.

The Quick Search allows a group of emission factors that meet the user's defined search conditions to be found in a very short time (usually less than five seconds). However, it may not find every possible factor. An extensive search allows all emission factors that meet the user's defined search conditions to be found after a longer period of time (usually one to five minutes). The particular characteristics of each search are described below.

---

\*\* In typing in words and phrases throughout this system, the user does not need to capitalize. Also, the user does not need to type in hyphens or dashes in SCC or CAS numbers.

### Quick Searches

- Only looks at a selected portion of the database for the desired information and returns it to the user very quickly.
- Will only find those records whose fields begin with the specified search string(s).
- Works for numeric and alphabetic search conditions.

### Extensive Search

- Looks at the entire database from the beginning to the end and returns the needed information rather slowly to user.
- Will find every record whose fields contain the specified search string(s) anywhere within them.
- Works only for search conditions that are words, (i.e., pollutant names, process names, and source names). Extensive search should not be used if the user is searching by SIC, SCC, or CAS number.

For example, suppose the user is looking for the following record:

| <u>Field Name</u> | <u>Value</u>             |
|-------------------|--------------------------|
| Pollutant Name    | POM                      |
| Emission Source   | Oil-fired utility boiler |
| Emission Factor   | 0.0821 ug/bbl            |

If the user specified a search for Pollutant Name = "POM" and Emission Source = "utility boiler," then a Quick Search would not find the emission factor shown above, but an Extensive Search would. The Quick Search would not be able to find the record because "Oil-fired utility boiler," the value of the Emission Source field, does not begin with "utility boiler." The extensive search would locate this record. If, however, the user looked for

Pollutant Name = "POM" and Emission Source = "Oil-fired utility boiler," (or just "Oil-fired"), then both Quick Search and Extensive Search would find the emission factor.

The report option of the ATEF data management system will find and print only those emission factors that are normally found by Quick Search. The particular factors that are found only during an Extensive Search will not be found by a Quick Search and thus will not be printed by the Print Reports option. These emission factors will only be displayed during an Extensive Search and can only be printed by using the <PrtSc> function while the particular factors are displayed.

## 6.0 SEARCHING THE DATABASE

### 6.1 INTRODUCTION

The Search Database option may be selected from the Main Menu when the database is to be searched and no edits or additions are to be made in the data. Once the records have been located by the ATEF data management system, the user can either examine them sequentially in forward or reverse order, print the record information on a printer, or return to the Main Menu. That is, the user may:

1. Page forward to the next record;
2. Page backward to the previous record;
3. Print the information on a printer; or
4. Return to the Main Menu.

As the selection bar at the bottom of the Search screen suggests, press the [PgDn] key to page forward to the next record, press the [PgUp] key to page backward to the previous record, press the [PrtSc] key to print the record information on a printer, or press the [Esc] key to return to the Main Menu.

A message will appear at the bottom of the search screen if the database is paged backward to the first record matching the specified search condition(s) or if the database is paged forward to the last record matching the specified search condition(s). The user may press any key when these messages appear to erase them and return the selection bar to the screen.

### 6.2 EXAMPLES OF SEARCHING THE DATABASE

As an example of database searching, suppose the user needs to locate all emission factors for Polycyclic Organic Matter (POM) from fireplaces used for home heating. The following pages will step the user through this process and display the screens that will be seen on the computer monitor.

| Main Menu                             |
|---------------------------------------|
| Search Database                       |
| Print Reports                         |
| Edit Information                      |
| Add Information                       |
| Press <ESC> to terminate this session |

Locate specified records in the database

After entering the ATEF data management system, the Main Menu screen will appear. The highlight bar on the screen will be over the Search Database option. This is the option desired for the example to follow, so press [Return].

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AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

Specify Pollutant Name or CAS Code

The next screen to appear is the Search Definition Screen. This is the controlling screen for defining the search scope. The user is asked to specify which of the variables to search. In this example, the scope will be: (1) Pollutant = "pom," (2) Industrial Process = "home heating," and (3) Emission Source = "fireplace." The highlight bar is over the Pollutant option, so to specify the Pollutant scope, press [Return].

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AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

(Name or Code)

The bottom of the screen has now changed and the ATEF system needs to know whether the user intends to specify the Pollutant by name or by CAS number. In this case, press [N] to enter the Pollutant name.

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AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

Please enter the pollutant:

The ATEF system is now waiting for the user to type in the name of the Pollutant.

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AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

Please enter the pollutant: pom

The user types in "pom" and presses [Return].

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AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant  
Industrial Process  
Emission Source

Begin Search

Begin the Database Search

The ATEF system is back to the Search Definition Screen. The highlight bar is over the Begin Search option. The user may press [Return] at this point to end the search definition at Pollutant = "pom" and begin the database search. For this example, however, the search is to be based on pollutant, industrial process, and emission source.

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AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

Specify Industrial Process or SIC Code

By pressing the up arrow key on the keyboard, the highlight bar may be positioned over the Industrial Process option. The user will note that the highlight bar cannot be moved back to the Pollutant option because a pollutant has already been specified. To continue and enter an Industrial Process, press [Return].

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AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

(Name or Code)

The ATEF system is once again asking whether the search condition is to be entered by name or code (i.e., Industrial Process or SIC code). Press [N] for name.

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AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

Process:

--

The ATEF system is now waiting for the user to type in the name of the Industrial Process.

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AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

Process: home heating

The user types in "home heating" and presses [Return].

August 12

AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

Begin the Database Search

The ATEF system is back to the Search Definition Screen. There is one more search parameter to enter (i.e., Emission Source = "fireplace"), so ...

August 12

AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

Specify Emission Source or SCC Code

Press the up arrow key to move the highlight bar over the Emission Source option and press [Return].

August 12

AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

(Name or Code)

Once again, the ATEF system wants to know if the user intends to enter the name of the Emission Source or its SCC. Press [N] for name.

August 12

AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

SRC:

The ATEF system is waiting for the user to enter the name of the  
Emission Source.

August 12

AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

SRC: fireplace

The user types "fireplace" and presses [Return].

August 12

AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

Begin the Database Search

When the ATEF system returns the user to the Search Definition Screen this time, all of the search parameters have been specified. Press [Return] to begin the database search.

August 12

AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

Please wait while the database is searched . . .

A message is displayed at the bottom of the Search Definition Screen to notify the user that the database is being searched.

A Quick Search has located Matching records.  
Would you like to perform a more extensive search? (Y/N) F

A message is displayed notifying the user of the result of a Quick Search. If the search was successful, the message above is displayed. If the search was unsuccessful, the message would flash and respond in the negative. In this example, a Quick Search will be used. Because the default answer is false, simply press [Return] to begin the Quick Search function (The user could also press [N] for no).

A Quick Search has located Matching records.  
Would you like to perform a more extensive search? (Y/N) F

Please wait while the records are counted . . .

A message is displayed while the records located by Quick Search are counted.

August 12

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<160>

|                                         |                      |           |  |
|-----------------------------------------|----------------------|-----------|--|
| Pollutant:                              | POM                  | CAS:      |  |
| Process:                                | Home heating furnace |           |  |
| SIC Code:                               |                      | SCC Code: |  |
| _____ Emission Source _____             |                      |           |  |
| Fireplace                               |                      |           |  |
| Emission Factor: 32.5 mg/kg fuel burned |                      |           |  |

Reference: 114

Notes: Uncontrolled; represents both gaseous and particulate POM; average of 3 values

<PgUp> = Previous    <PgDn> = Next    <PrtSc> = Print    <Esc> = Main Menu

After the matching records have been counted, the Record Information Screen displays the first record matching the search parameters. On the Record Information Screen, the date is displayed on the top left and a reference record number is displayed on the top right. The record information, including the emission factor, is in the body of the screen and the selection bar is on the bottom.

August 12

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<160>

|                                         |                      |           |  |
|-----------------------------------------|----------------------|-----------|--|
| Pollutant:                              | POM                  | CAS:      |  |
| Process:                                | Home heating furnace |           |  |
| SIC Code:                               |                      | SCC Code: |  |
| _____ Emission Source _____             |                      |           |  |
| Fireplace                               |                      |           |  |
| Emission Factor: 32.3 mg/kg fuel burned |                      |           |  |

Reference: 114

Notes: Uncontrolled; represents both gaseous and particulate POM; average of 3 values

This is the first matching record in the database.

If the user presses the [PgUp] key on the keyboard at this point, a message will appear saying that the first matching record is currently displayed (i.e., there are no records to "scroll up" to).

|                                         |                      |      |
|-----------------------------------------|----------------------|------|
| Pollutant:                              | POM                  | CAS: |
| Process:                                | Home heating furnace |      |
| SIC Code:                               | SCC Code:            |      |
| _____ Emission Source _____             |                      |      |
| Fireplace                               |                      |      |
| Emission Factor: 32.5 mg/kg fuel burned |                      |      |

Reference: 114

Notes: Uncontrolled; represents both gaseous and particulate POM; average of 3 values

&lt;PgUp&gt; = Previous   &lt;PgDn&gt; = Next   &lt;PrtSc&gt; = Print   &lt;Esc&gt; = Main Menu

The user may press any key to return to the selection bar to the bottom of the screen.

August 12

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<160>

|                             |                        |      |
|-----------------------------|------------------------|------|
| Pollutant:                  | POM                    | CAS: |
| Process:                    | Home heating furnace   |      |
| SIC Code:                   | SCC Code:              |      |
| _____ Emission Source _____ |                        |      |
| Fireplace                   |                        |      |
| Emission Factor:            | 32.5 mg/kg fuel burned |      |

Reference: 114

Notes: Uncontrolled; represents both gaseous and particulate POM; average of 3 values

Turn on the printer and press any key to continue . . .

If the user presses the [PrtSc] key, a message appears at the bottom of the screen with a reminder to turn on the printer. If no printer is available, the user's request to print the record information will be ignored.

Date = 08/12/88  
Time = 21:43:16

AIR TOXICS EMISSION FACTOR DATABASE

Record Information

Record Number = 160

Pollutant = POM

CAS Number =

Industrial Process = Home heating furnace

SIC Code =

Emission Source = Fireplace

SCC Code =

Emission Factor = 32.5 ug/kg fuel burned

Reference = 114

Notes = Uncontrolled; represents both gaseous and particulate POM; average of 3 values

This is an example of the report printed when the [PrtSc] key is pressed and a printer is connected to the computer and turned on.

August 12

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<161>

|                                          |                      |           |  |
|------------------------------------------|----------------------|-----------|--|
| Pollutant:                               | POM                  | CAS:      |  |
| Process:                                 | Home heating furnace |           |  |
| SIC Code:                                |                      | SCC Code: |  |
| _____ Emission Source _____              |                      |           |  |
| Fireplace                                |                      |           |  |
| Emission Factor: 0.019 mg/kg fuel burned |                      |           |  |

Reference: 114

Notes: Uncontrolled; represents only particulate POM; average of 3 values

<PgUp> = Previous    <PgDn> = Next    <PrtSc> = Print    <Esc> = Main Menu

If the user presses the [PgDn] key, the next record matching the specified search parameters will be displayed.

If the user presses the [PgDn] key when the last record matching the search parameters is displayed, a message to that effect will appear instead of the selection bar at the bottom of the screen. The user may press any key to return the selection bar to the bottom of the screen.

| Main Menu                             |
|---------------------------------------|
| Search Database                       |
| Print Reports                         |
| Edit Information                      |
| Add Information                       |
| Press <ESC> to terminate this session |

Locate specified records in the database

If the user presses the [Esc] key while the selection bar is displayed at the bottom of the Record Information Screen, the search operation will be aborted and the Main Menu will once again be displayed. At this point the user may select any Main Menu option or exit the ATEF data management system.

## 7.0 PRINTING REPORTS

### 7.1 INTRODUCTION

The Print Reports option may be selected if the user needs hard copy documentation of any selected emission factors. After a group of emission factor records has been reviewed, the user may return to the Main Menu and begin the Print Reports operation. The user specifies search conditions as was described in Sections 5 and 6. Then the user is reminded to turn on the printer. Next the user selects one of the possible report formats. After the report is printed, the user is returned to the Main Menu where the session can be ended or continued.

### 7.2 EXAMPLES OF PRINTING REPORTS

As an example of report printing, suppose the user needs to print all emission factors for ammonia from ammonium nitrate production. The following pages will step the user through this process and display the screens that will be seen on the computer monitor.

August 12

AIR TOXICS EMISSION FACTOR DATABASE

Friday

| Main Menu                             |
|---------------------------------------|
| Search Database                       |
| Print Reports                         |
| Edit Information                      |
| Add Information                       |
| Press <ESC> to terminate this session |

Generate reports on a standard printer

After entering the ATEF data management system, the Main Menu screen will appear. The highlight bar on the screen will be over the Search Database option. To select the Print Reports option, the user presses the down arrow key once and presses [Return]. This option may also be selected by typing [P].

August 12

AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant  
Industrial Process  
Emission Source

Begin Search

Specify Pollutant Name or CAS Code

The next screen to appear is the Search Definition Screen. This is the controlling screen for defining the search scope. In this example, the scope will be: (1) Pollutant = "ammonia" and (2) Industrial Process = "ammonium nitrate production."

The highlight bar is over the Pollutant option, so to specify the search conditions for Pollutant, press [Return]. Follow the instructions, as shown in Section 6.0, for defining the Pollutant scope.

After the user defines the pollutant scope, the ATEF system returns to the Search Definition Screen. To specify the search conditions for Industrial Process, move the highlight bar over the Industrial Process option and press [Return]. Follow the instructions, as shown in Section 6.0, for defining the Industrial Process scope.

When the ATEF system returns the user to the Search Definition Screen this time, all of the search parameters have been specified. The highlight bar will be over the Begin Search option. Press [Return] to begin the database search.

August 12

AIR TOXICS EMISSION FACTOR DATABASE  
Search Definition Screen

Friday

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

Please wait while the database is searched . . .

A message is displayed at the bottom of the Search Definition Screen to notify the user that the database is being searched.

PLEASE TURN ON THE PRINTER BEFORE PROCEEDING!

Press any key to continue . . . [Esc] to abort.

If a search was successful and the ATEF data management system found records in the database matching the user specified search parameters, a message will be displayed reminding the user to turn on the printer before proceeding. If a search was unsuccessful, the user will be returned to the Main Menu. The user may press any key to continue.

AIR TOXICS EMISSION FACTOR DATABASE  
Report Generator

Would you like a report by:

Pollutant

SIC Code

The next screen to appear is the Report Generator Screen. The user has the option of printing two types of reports. The first option, Pollutant, generates a report sorted by pollutant; whereas the second option sorts by SIC code. For this example, a report by pollutant will be produced, so the user presses [Return].

Please wait while the report is printing . . .

A message will appear while the report is printing.

AIR TOXICS EMISSION FACTOR DATABASE

Report listing by pollutant for criteria

| Pollutant | Industrial Process          | Emission Source                               | Emission Factor                    | Notes                                                                                 | Reference |
|-----------|-----------------------------|-----------------------------------------------|------------------------------------|---------------------------------------------------------------------------------------|-----------|
| Ammonia   | Ammonium nitrate production | Neutralizer                                   | 0.43 - 18.0 kg/Mg NH4 NO3 produced | Uncontrolled presented as range because of data variations                            | 97        |
| Ammonia   | Ammonium nitrate production | Evaporation/condensation operations           | 0.27 - 16.7 kg/Mg NH4 NO3 produced | Uncontrolled presented as range because of data variations                            | 97        |
| Ammonia   | Ammonium nitrate production | Solids formations - high density grill towers | 28.6 kg/Mg NH4 NO3 produced        | Uncontrolled                                                                          | 97        |
| Ammonia   | Ammonium nitrate production | Solids formation - low density grill towers   | 0.13 kg/Mg NH4 NO3 produced        | Uncontrolled                                                                          | 97        |
| Ammonia   | Ammonium nitrate production | Solids formation - rotary drum granulators    | 29.7 kg/Mg NH4 NO3 produced        | Uncontrolled                                                                          | 97        |
| Ammonia   | Ammonium nitrate production | Solids formation - pan granulators            | 0.07 kg/Mg NH4 NO3 produced        | Uncontrolled                                                                          | 97        |
| Ammonia   | Ammonium nitrate production | High density grill coolers                    | 0.02 kg/Mg NH4 NO3 produced        | Uncontrolled represents coolers and pre-coolers                                       | 97        |
| Ammonia   | Ammonium nitrate production | Low density grill coolers                     | 0.13 kg/Mg NH4 NO3 produced        | Uncontrolled represents coolers and pre-coolers                                       | 97        |
| Ammonia   | Ammonium nitrate production | Low density grill dryers                      | 0 - 1.59 kg/Mg NH4 NO3 produced    | Uncontrolled presented as range due to data variations represents dryer and pre-dryer | 97        |
| Ammonia   | Ammonium nitrate production | Rotary drum granulator coolers                | 0.59 kg/Mg NH4 NO3 produced        | Uncontrolled represents cooler and pre-cooler                                         | 97        |
| Ammonia   | Ammonium nitrate production | Pan granulator coolers                        | 0 kg/Mg NH4 NO3 produced           | Represents cooler and pre-cooler                                                      | 97        |

This is an example of a report listing by pollutant.

| Main Menu                             |
|---------------------------------------|
| Search Database                       |
| Print Reports                         |
| Edit Information                      |
| Add Information                       |
| Press <ESC> to terminate this session |

Locate specified records in the database

When the report has been printed, the Main Menu will once again be displayed. At this point the user may select any Main Menu option or exit the ATEF data management system.

## 8.0 EDITING THE DATABASE

### 8.1 INTRODUCTION

The Edit Database option may be selected from the Main Menu when the database is to be searched and alterations are to be made in the existing data. Once the records have been located by the ATEF data management system, the user has the option of examining them sequentially in forward or reverse order, editing the record information, deleting the record, or returning to the Main Menu. The five options available to the user are:

1. Page forward to the next record;
2. Page backward to the previous record;
3. Edit the record information;
4. Delete the record information; or
5. Return to the Main Menu.

As the selection bar at the bottom of the Search screen suggests, press the [PgDn] key to page forward to the next record, press the [PgUp] key to page backward to the previous record, press the [+] key to edit the record information, press the [Del] key to delete the record, or press the [Esc] key to return to the Main Menu.

A message will appear at the bottom of the search screen if the database is paged backward to the first record matching the specified search condition(s) or if the database is paged forward to the last record matching the specified search condition(s). The user may press any key when these messages appear to erase them and return the selection bar to the screen.

### 8.2 EXAMPLES OF EDITING THE DATABASE

As an example of editing the database, suppose the user needs to change the record information for all emission factors from chain saws. In this case, the user has decided that the Emission Source category of these

records should read "Chain saws" instead of "Chain saw." The following pages will step the user through this process and display the screens that will be seen on the computer monitor.

August 12

AIR TOXICS EMISSION FACTOR DATABASE

Friday

| Main Menu                             |
|---------------------------------------|
| Search Database                       |
| Print Reports                         |
| Edit Information                      |
| Add Information                       |
| Press <ESC> to terminate this session |

Update existing database records

After entering the ATEF data management system, the Main Menu screen will appear. The highlight bar on the screen will be over the Search Database option. For this example, the Edit Information option will be used. The user selects this option by using the down arrow key to move the highlight bar over the Edit Information option and pressing [Return]. The option may also be selected by typing [E].

Would you like to locate a record by:

Pollutant

Industrial Process

Emission Source

Begin Search

Specify Pollutant Name or CAS Code

The next screen to appear is the Search Definition Screen. This is the controlling screen for defining the search scope. In this example, the user is looking for the emission factors of all pollutants from chain saws. The scope will be: (1) Industrial Process = "chain saw." The purpose of this edit is to change the wording of the Emission Source field from "chain saw" to "chain saws."

The highlight bar is over the Pollutant option, so to specify the search conditions for Industrial Process, press the down arrow key once and then press [Return]. Follow the instructions, as shown in Section 6.0, for defining the Industrial Process scope. After this, the ATEF system returns to the Search Definition Screen.

The highlight bar is over the Begin Search option. All of the search parameters have been entered, so the user presses [Return] to begin the database search. A message will appear at the bottom of the Search Definition screen to notify the user that the database is being searched.

A Quick Search has located Matching records.  
Would you like to perform a more extensive search? (Y/N) F

After the database has been searched, a message is displayed notifying the user of the result of a Quick Search. If the search was successful, the message above is displayed. If the search was unsuccessful, the message would flash and respond in the negative. In this example, a Quick Search will be used. Because the default answer is false, simply press [Return] to begin the Quick Search function (The user could also press [N] for no).

A message is displayed while the records located by Quick Search are counted.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<102>

|                             |                    |           |  |
|-----------------------------|--------------------|-----------|--|
| Pollutant:                  | POM                | CAS:      |  |
| Process:                    | Chain saw exhausts |           |  |
| SIC Code:                   |                    | SCC Code: |  |
| _____ Emission Source _____ |                    |           |  |
| Chain saw                   |                    |           |  |
| Emission Factor: 75 mg/m3   |                    |           |  |

Reference: 114

Notes: Measured during laboratory tests

<PgUp> = Previous <PgDn> = Next <+> = Edit <Del> = Delete <Esc> = Main Menu

After the matching records have been counted, the Record Information Screen displays the first record matching the search parameters. On the Record Information Screen, the date is displayed on the top left and a reference record number is displayed on the top right. The record information, including the emission factor, is in the body of the screen and the selection bar is on the bottom.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<102>

|                             |                    |      |
|-----------------------------|--------------------|------|
| Pollutant:                  | POM                | CAS: |
| Process:                    | Chain saw exhausts |      |
| SIC Code:                   | SCC Code:          |      |
| _____ Emission Source _____ |                    |      |
| Chain saw                   |                    |      |
| Emission Factor:            | 75 mg/m3           |      |

Reference: 114

Notes: Measured during laboratory tests

If the user presses the [+] key on the keyboard, the selection bar will be erased and the user will be allowed to edit the information.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<102>

|                             |                    |      |
|-----------------------------|--------------------|------|
| Pollutant:                  | POM                | CAS: |
| Process:                    | Chain saw exhausts |      |
| SIC Code:                   | SCC Code:          |      |
| _____ Emission Source _____ |                    |      |
| Chain saws                  |                    |      |
| Emission Factor: 75 mg/m3   |                    |      |

Reference: 114

Notes: Measured during laboratory tests

The user may use the [Return] key or the up and down arrow keys to move the cursor through the body of the text. In this case, the users presses [Return] five times to get to the Emission Source category and changed the "Chain saw" to "Chain saws."

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<102>

|                             |                    |           |  |
|-----------------------------|--------------------|-----------|--|
| Pollutant:                  | PM                 | CAS:      |  |
| Process:                    | Chain saw exhausts |           |  |
| SIC Code:                   |                    | SCC Code: |  |
| _____ Emission Source _____ |                    |           |  |
| Chain saws                  |                    |           |  |
| Emission Factor: 75 mg/m3   |                    |           |  |

Reference: 114

Notes: Measured during laboratory tests

Is this information correct? (Y/N) F

When all of the information has been changed, the user may press the [Return] key from the Notes category or the [PgDn] key at any time to enter the changed information. When either of these events occur, the ATEF system displays a message asking the user if the information entered is correct.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<102>

|                             |                    |      |
|-----------------------------|--------------------|------|
| Pollutant:                  | POM                | CAS: |
| Process:                    | Chain saw exhausts |      |
| SIC Code:                   | SCC Code:          |      |
| _____ Emission Source _____ |                    |      |
| Chain saws                  |                    |      |
| Emission Factor: 75 mg/m3   |                    |      |

Reference: 114

Notes: Measured during laboratory tests

Is this information correct? (Y/N) y

The user presses [Y] followed by [Return].

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<102>

|                             |                    |      |
|-----------------------------|--------------------|------|
| Pollutants:                 | POM                | CAS: |
| Process:                    | Chain saw exhausts |      |
| SIC Code:                   | SCC Code:          |      |
| _____ Emission Source _____ |                    |      |
| Chain saws                  |                    |      |
| Emission Factor: 75 mg/m3   |                    |      |

Reference: 114

Notes: Measured during laboratory tests

<PgUp> = Previous <PgDn> = Next <+> = Edit <Del> = Delete <Esc> = Main Menu

The selection bar is returned to the bottom of the screen and the user may select any of the options it displays.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<103>

|                             |                    |           |  |
|-----------------------------|--------------------|-----------|--|
| Pollutant:                  | POM                | CAS:      |  |
| Process:                    | Chain saw exhausts |           |  |
| SIC Code:                   |                    | SCC Code: |  |
| _____ Emission Source _____ |                    |           |  |
| Chain saw                   |                    |           |  |
| Emission Factor: 31 ug/m3   |                    |           |  |

Reference: 114

Notes: Average of range of values measured in field use (19-42 ug/m3)

<PgUp> = Previous   <PgDn> = Next   <+> = Edit   <Del> = Delete   <Esc> = Main Menu

If the user presses the [PgDn] key, the next record matching the specified search parameters will be displayed.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

103

|                             |                    |           |  |
|-----------------------------|--------------------|-----------|--|
| Pollutant:                  | POM                | CAS:      |  |
| Process:                    | Chain saw exhausts |           |  |
| SIC Code:                   |                    | SCC Code: |  |
| _____ Emission Source _____ |                    |           |  |
| Chain saw                   |                    |           |  |
| Emission Factor: 31 ug/m3   |                    |           |  |

Reference: 114

Notes: Average of range of values measured in field use (19-42 ug/m3)

The user once again presses the [+] key to edit the Emission Source category.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<103>

|                             |                    |      |
|-----------------------------|--------------------|------|
| Pollutant:                  | POM                | CAS: |
| Process:                    | Chain saw exhausts |      |
| SIC Code:                   | SCC Code:          |      |
| _____ Emission Source _____ |                    |      |
| Chain saws                  |                    |      |
| Emission Factor: 31 ug/m3   |                    |      |

Reference: 114

Notes: Average of range of values measured in field use (19-42 ug/m3)

The Emission Source category is changed from "Chain saw" to "Chain saws."

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<103>

|                             |                    |           |  |
|-----------------------------|--------------------|-----------|--|
| Pollutant:                  | POM                | CAS:      |  |
| Process:                    | Chain saw exhausts |           |  |
| SIC Code:                   |                    | SCC Code: |  |
| _____ Emission Source _____ |                    |           |  |
| Chain saws                  |                    |           |  |
| Emission Factor: 31 ug/m3   |                    |           |  |

Reference: 114

Notes: Average of range of values measured in field use (19-42 ug/m3)

Is this information correct? (Y/N) F

The ATEF system requests verification of the changed information.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record information

<103>

|                             |                    |           |  |
|-----------------------------|--------------------|-----------|--|
| Pollutant:                  | POM                | CAS:      |  |
| Process:                    | Chain saw exhausts |           |  |
| SIC Code:                   |                    | SCC Code: |  |
| _____ Emission Source _____ |                    |           |  |
| Chain saws                  |                    |           |  |
| Emission Factor: 31 ug/m3   |                    |           |  |

Reference: 114

Notes: Average of range of values measured in field use (19-42 ug/m3)

Is this information correct? (Y/N) y

The user presses the [Y] key followed by [Return].

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<103>

|                             |                    |      |
|-----------------------------|--------------------|------|
| Pollutant:                  | POM                | CAS: |
| Process:                    | Chain saw exhausts |      |
| SIC Code:                   | SCC Code:          |      |
| _____ Emission Source _____ |                    |      |
| Chain saws                  |                    |      |
| Emission Factor: 31 ug/m3   |                    |      |

Reference: 114

Notes: Average of range of values measured in field use (19-42 ug/m3)

<PgUp> = Previous <PgDn> = Next <+> = Edit <Del> = Delete <Esc> = Main Menu

The selection bar is once again displayed at the bottom of the Record Information Screen.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

103

|                             |                    |           |  |
|-----------------------------|--------------------|-----------|--|
| Pollutant:                  | PM                 | CAS:      |  |
| Process:                    | Chain saw exhausts |           |  |
| SIC Code:                   |                    | SCC Code: |  |
| _____ Emission Source _____ |                    |           |  |
| Chain saws                  |                    |           |  |
| Emission Factor: 31 ug/m3   |                    |           |  |

Reference: 114

Notes: Average of range of values measured in field use (19-42 ug/m3)

This is the last matching record in the database.

If the user presses the [PgDn] key when the last record matching the search parameters is displayed, a message to that effect will appear at the bottom of the screen.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

103

|                             |                    |           |  |
|-----------------------------|--------------------|-----------|--|
| Pollutant:                  | POM                | CAS:      |  |
| Process:                    | Chain saw exhausts |           |  |
| SIC Code:                   |                    | SCC Code: |  |
| _____ Emission Source _____ |                    |           |  |
| Chain saws                  |                    |           |  |
| Emission Factor: 31 ug/m3   |                    |           |  |

Reference: 114

Notes: Average of range of values measured in field use (19-42 ug/m3)

<PgUp> = Previous <PgDn> = Next <+> = Edit <Del> = Delete <Esc> = Main Menu

The user may press any key to return the selection bar to the bottom of the screen.

| Main Menu                             |
|---------------------------------------|
| Search Database                       |
| Print Reports                         |
| Edit Information                      |
| Add Information                       |
| Press <ESC> to terminate this session |

Locate specified records in the database

If the user presses the [Esc] key while the selection bar is displayed at the bottom of the Record Information Screen, the search operation will be aborted and the Main Menu will once again be displayed. At this point the user may select any Main Menu option or exit the ATEF data management system.

## 9.0 ADDING TO THE DATABASE

### 9.1 INTRODUCTION

The Add Information option may be selected when a new emission factor is to be added to the database. When new factors are added, it will be helpful if the user will attempt to maintain consistency with the existing database. For instance, if the database currently has the pollutant, ammonia, listed as Pollutant Name = "Ammonia," then the user should not enter a new record with the Pollutant Name = "ammonia" or "AMMONIA." Consistent capitalization is necessary to ensure that the Quick Search options works correctly.

### 9.2 EXAMPLES OF ADDING DATA

As an example of adding information to the database, suppose the user needs to enter the information described below. The following pages will step the user through this process and display the screens that will be seen on the computer monitor.

#### Record #1

Pollutant = Benzene

CAS = 71432

Industrial Process = Chlorobenzene production

SIC Code = 2865

SCC Code = 30130101

Emission Source = Tail gas treatment

Emission Factor = 0.52 g benzene/kg nitrobenzene prod.

Reference = 132

Notes = Uncontrolled; based on 150,000 Mg/yr capacity factor model plant

Record #2

Pollutant = Benzene

CAS = 71432

Industrial Process = Chlorobenzene production

SIC Code = 2865

SCC Code = 30130101

Emission Source = Tail gas treatment

Emission Factor = 0.0067 g benzene/kg nitrobenzene prod.

Reference = 132

Notes = Controlled; carbon absorption, 98.7 percent efficiency, based on  
150,000 Mg/yr capacity model plant

| Main Menu                             |
|---------------------------------------|
| Search Database                       |
| Print Reports                         |
| Edit Information                      |
| Add Information                       |
| Press <ESC> to terminate this session |

Create a new record and enter information

After entering the ATEF data management system, the Main Menu screen will appear. The highlight bar on the screen will be over the Search Database option. For this example, the Add Information option will be used. The user selects this option by using the down arrow key option and pressing [Return]. This option may also be selected by typing [A].

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<1346>

|                             |           |
|-----------------------------|-----------|
| Pollutant:                  | CAS:      |
| Process:                    |           |
| SIC Code:                   | SCC Code: |
| _____ Emission Source _____ |           |
| Emission Factor:            |           |

Reference:

Notes:

The Record Information Screen is displayed with all of the record categories blank. On the Record Information Screen, the date is displayed on the top left and a reference number is displayed on the top right. The cursor is positioned at the beginning of the Pollutant category and the ATEF system is waiting for the user to enter information.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<1346>

|                                                       |                          |           |          |
|-------------------------------------------------------|--------------------------|-----------|----------|
| Pollutant:                                            | Benzene                  | CAS:      | 71432    |
| Process:                                              | Chlorobenzene Production |           |          |
| SIC Code:                                             | 2865                     | SCC Code: | 30130101 |
| _____ Emission Source _____                           |                          |           |          |
| Tail gas treatment                                    |                          |           |          |
| Emission Factor: 0.52 g benzene/kg nitrobenzene prod. |                          |           |          |

Reference: 132

Notes: Uncontrolled; based on 150,000 Mg/yr capacity factor model plant

The user enters a screen full of information.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<1346>

|                                                       |                          |           |          |
|-------------------------------------------------------|--------------------------|-----------|----------|
| Pollutant:                                            | Benzene                  | CAS:      | 71432    |
| Process:                                              | Chlorobenzene Production |           |          |
| SIC Code:                                             | 2865                     | SCC Code: | 30130101 |
| _____ Emission Source _____                           |                          |           |          |
| Tail gas treatment                                    |                          |           |          |
| Emission Factor: 0.52 g benzene/kg nitrobenzene prod. |                          |           |          |

Reference: 132

Notes: Uncontrolled; based on 150,000 Mg/yr capacity factor model plant

Is this information correct? (Y/N) F

When all of the information has been entered, the user may press the [Return] key from the Notes category to enter the information into the database. When this happens, the ATEF system displays a message asking the user if the information entered is correct.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<1346>

|                                                       |                          |           |          |
|-------------------------------------------------------|--------------------------|-----------|----------|
| Pollutant:                                            | Benzene                  | CAS:      | 71432    |
| Process:                                              | Chlorobenzene Production |           |          |
| SIC Code:                                             | 2865                     | SCC Code: | 30130101 |
| ----- Emission Source -----                           |                          |           |          |
| Tail gas treatment                                    |                          |           |          |
| Emission Factor: 0.52 g benzene/kg nitrobenzene prod. |                          |           |          |

Reference: 132

Notes: Uncontrolled; based on 150,000 Mg/yr capacity factor model plant

Is this information correct? (Y/N) y

The user presses the [Y] key followed by [Return]

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<1346>

|                                                       |                          |           |          |
|-------------------------------------------------------|--------------------------|-----------|----------|
| Pollutant:                                            | Benzene                  | CAS:      | 71432    |
| Process:                                              | Chlorobenzene Production |           |          |
| SIC Code:                                             | 2865                     | SCC Code: | 30130101 |
| _____ Emission Source _____                           |                          |           |          |
| Tail gas treatment                                    |                          |           |          |
| Emission Factor: 0.52 g benzene/kg nitrobenzene prod. |                          |           |          |

Reference: 132

Notes: Uncontrolled; based on 150,000 Mg/yr capacity factor model plant

<PgDn> = Add another record    <Esc> = Return to Main Menu

A selection bar is now displayed at the bottom of the Record Information Screen. The user may select to add another record to the database or return to the Main Menu. For this example, the user will enter another record. The user presses the [PgDn] key.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<1347>

|                             |           |
|-----------------------------|-----------|
| Pollutant:                  | CAS:      |
| Process:                    |           |
| SIC Code:                   | SCC Code: |
| _____ Emission Source _____ |           |
| Emission Factor:            |           |

Reference:

Notes:

Once again a blank record is displayed.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<1347>

|                                                         |                          |           |          |
|---------------------------------------------------------|--------------------------|-----------|----------|
| Pollutant:                                              | Benzene                  | CAS:      | 71432    |
| Process:                                                | Chlorobenzene production |           |          |
| SIC Code:                                               | 2865                     | SCC Code: | 30130101 |
| _____ Emission Source _____                             |                          |           |          |
| Tail gas treatment                                      |                          |           |          |
| Emission Factor: 0.0067 g benzene/kg nitrobenzene prod. |                          |           |          |

Reference: 132

Notes: Controlled; carbon absorption, 98.7% eff., based on 150,000 Mg/yr capacity model plant

The user completes the new record information.

August 13

AIR TOXICS EMISSION FACTOR DATABASE  
Record Information

<1347>

|                                                         |                          |           |          |
|---------------------------------------------------------|--------------------------|-----------|----------|
| Pollutant:                                              | Benzene                  | CAS:      | 71432    |
| Process:                                                | Chlorobenzene production |           |          |
| SIC Code:                                               | 2865                     | SCC Code: | 30130101 |
| ----- Emission Source -----                             |                          |           |          |
| Tail gas treatment                                      |                          |           |          |
| Emission Factor: 0.0067 g benzene/kg nitrobenzene prod. |                          |           |          |

Reference: 132

Notes: Controlled; carbon absorption, 98.7% eff., based on 150,000 Mg/yr capacity model plant

Is this information correct? (Y/N) y

The user responds to the ATEF system verification request by pressing the [Y] key and then the [Return] key.

|                                                         |                          |           |          |
|---------------------------------------------------------|--------------------------|-----------|----------|
| Pollutant:                                              | Benzene                  | CAS:      | 71432    |
| Process:                                                | Chlorobenzene production |           |          |
| SIC Code:                                               | 2865                     | SCC Code: | 30130101 |
| _____ Emission Source _____                             |                          |           |          |
| Tail gas treatment                                      |                          |           |          |
| Emission Factor: 0.0067 g benzene/kg nitrobenzene prod. |                          |           |          |

Reference: 132

Notes: Controlled; carbon absorption, 98.7% eff., based on 150,000 Mg/yr capacity model plant

&lt;PgDn&gt; = Add another record    &lt;Esc&gt; = Return to Main Menu

When the selection bar returns to the screen this time, the user has entered all of the records for this session. So, the user presses the [Esc] key to return to the Main Menu.

| Main Menu                             |
|---------------------------------------|
| Search Database                       |
| Print Reports                         |
| Edit Information                      |
| Add Information                       |
| Press <ESC> to terminate this session |

Locate specified records in the database

After pressing the [Esc] key from the selection bar of the Record Information Screen, the Main Menu is once again displayed. At this point the user may select any Main Menu option or exit the ATEF data management system.

APPENDIX A  
BACKING UP THE DATABASE

## APPENDIX A

### BACKING UP THE DATABASE

The database should be backup up (1) as soon as it has been installed, (2) after every session during which it has been changed, and (3) at the end of every week. It is recommended that three sets of diskettes be used in a rotating backup scheme. The disks should be labeled and they should be dated every time they are used for a backup. A different set of disk(s) should be used for successive backups until all disks have been used at least once and thereafter the set with the oldest date should be used for backup. To backup the database to drive A:

1. Declare the current directory to be the root directory of the fixed disk by typing the commands shown below:

|      |          |          |
|------|----------|----------|
| TYPE | C:       | <Return> |
| TYPE | CD \ATEF | <Return> |

2. Begin the backup procedure by typing:

|      |         |          |
|------|---------|----------|
| TYPE | ATEF-BU | <Return> |
|------|---------|----------|

APPENDIX B  
RESTORING THE DATABASE

## APPENDIX B

### RESTORING THE DATABASE

When the database has been lost from the computer's fixed drive, the backups that the user has been making on a regular basis will prove useful. To restore the database to its state at the last backup:

1. Declare the current directory to be the root directory of the fixed disk by typing the following commands:

```
TYPE          C:          <Return>
TYPE          CD \ATEF    <Return>
```

2. Begin the restoration procedure by typing:

```
TYPE          ATEF-RS    <Return>
```

In the event of a complete loss of the ATEF data management system from the fixed disk, reinstall the system using the installation procedures and then restore the database to its most recent backup form as above.

APPENDIX C  
DEVELOPMENT TOOLS

APPENDIX C  
DEVELOPMENT TOOLS

The ATEF data management system was written using BRIEF (c) 1984 UnderWare, Inc., compiled with the summer 1987 version of CLIPPER (c) 1987 Nantucket Corporation, and linked with PLINK86Plus version 2.24 (c) 1987 Phoenix Technologies Ltd.

| TECHNICAL REPORT DATA<br>(Please read Instructions on the reverse before completing)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                  |                              |
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| 16. ABSTRACT<br><p>This report presents instructions on the Air Toxics Emission Factor data management system. The system was designed to allow easy access and updates to the emission factor data presented in the accompanying EPA report, <u>Toxic Air Pollutant Emission Factors - A Compilation For Selected Air Toxic Compounds And Source</u>, EPA-450/2-88-006a. This software system is an IBM PC based application that contains a listing of emission factors categorized by pollutant name, Chemical Abstracts Services (CAS) number, industrial process description, Standard Industrial Classification (SIC) code, emission source description, and source classification code (SCC). The program has modules that allow users to search, add, edit, and print data.</p> <p>The purpose of this report is to document the usage of the system. EPA is making available the system and data to agency users on two regular (360KB) diskettes or one high density (1.2 MB) diskette.</p> |                                                  |                              |
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